

Ritapedia

Vocabulary Exercise

Scientific Law

Definition:

Describes an observed pattern found in nature, without attempting to explain it.

Pictorial Definition:



The fact is, it's something that happens in nature all the time...
I don't have to explain how it happens..... IT'S THE LAW

Examples:

- The Law of Gravity
- Newton's Laws
- Law of Conservation of Matter

Connection:

Or - A Theory can be used to explain a Law

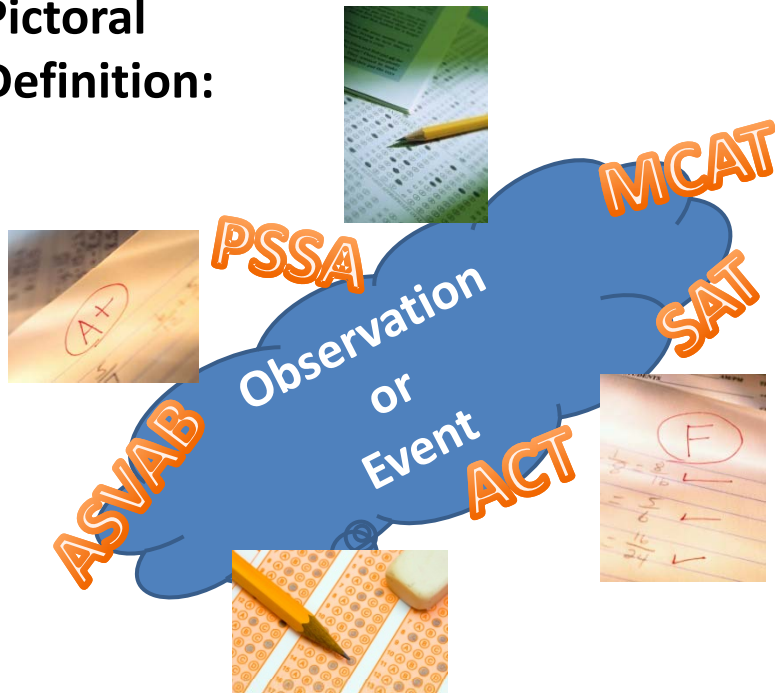
Book Sentence: After repeated observations or experiments, scientists may arrive at a scientific law.

Scientific Theory

Definition:

A well-tested explanation for an observation or an event

Pictorial Definition:



Examples:

- Theory of Relativity
- Theory of Evolution
- Chaos Theory

Connection

or - Once a hypothesis has been supported, it begins to become a Scientific Theory.

Book Sentence:

- Theories are never proved.

Hypothesis

Definition:

A statement that attempts to answer a question. An educated guess.

Examples:

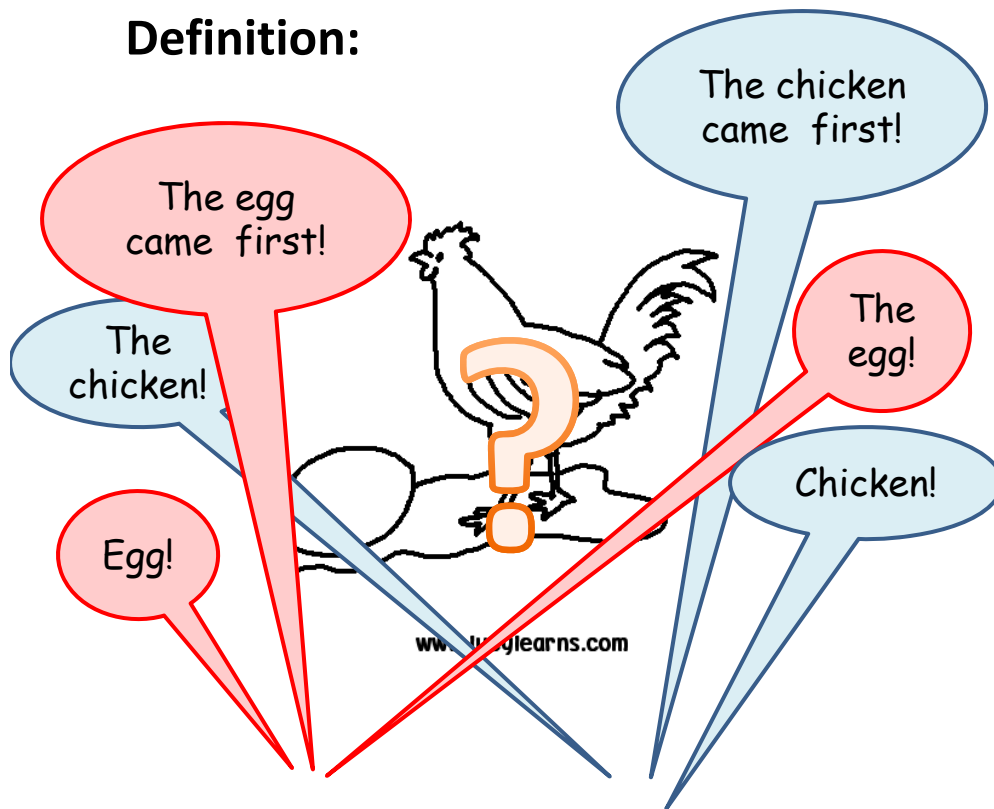
- The sun rises in the west
- Girls in this class will get higher grades than the guys.
- The Freshman class will raise more money than any other class in this school.

Book Sentence:

- Good observation leads to making a good hypothesis.

Pictorial

Definition:



Manipulated Variable

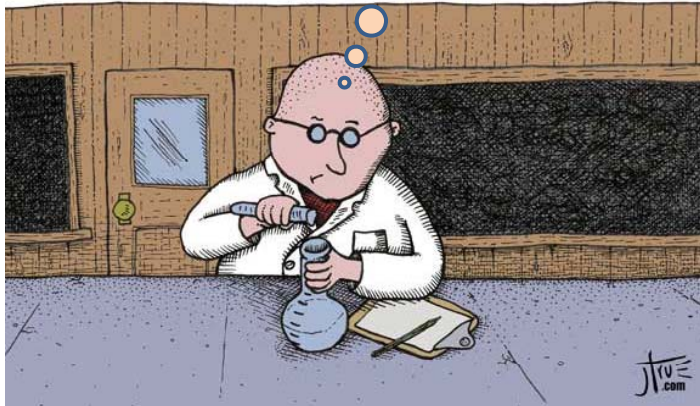
Definition:

The variable that you change in an experiment

Pictoral

Definition:

What would happen if
I added Mentos to Jolt cola?



Examples:

- Changing the light used to grow plants
- Adding more weight to a pendulum

Book Sentence:

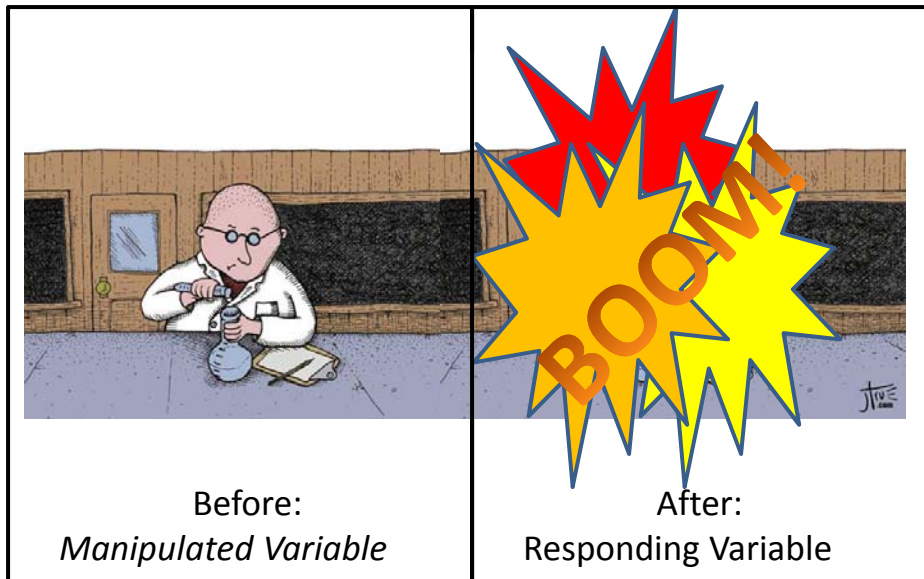
- The variable that causes a change in another

Responding Variable

Definition:

The variable that changes due to the change in the manipulated variable.

Pictorial Definition:



Examples:

- The red liquid rises to the top of the Man-O-Meter by heat.
- The Fizz Rocket goes higher when you add more baking soda.

Connection: When we change the manipulated variable, it results in a change in the responding variable.

Controlled Experiment

Definition:

The experiment where only one variable is changed and is used to compare other experiments

Pictorial

Definition:



Examples:

- A plant left under a grow bulb and gets the same amount of water as the others. The other are compared to this plant
- A group of people given a placebo

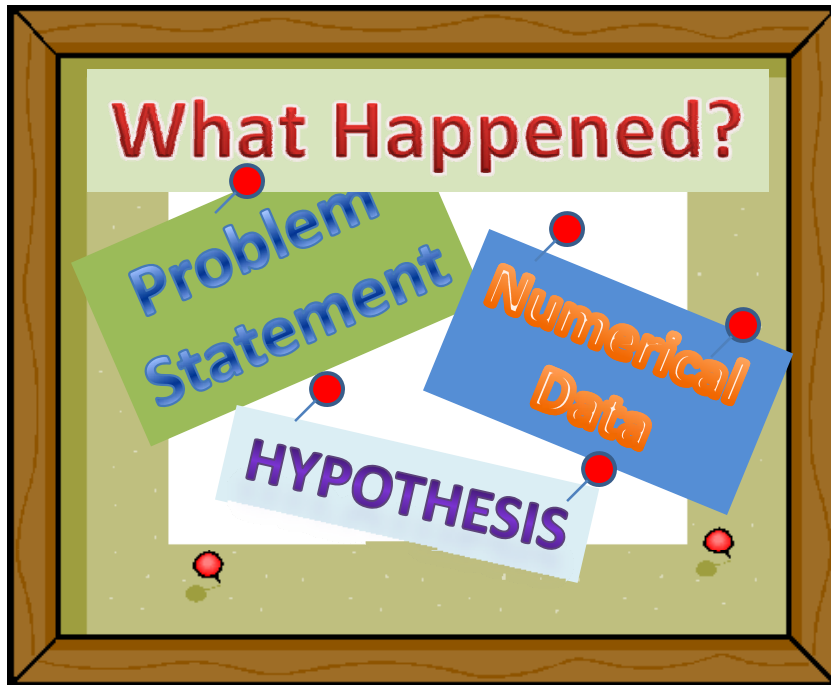
Connection:

- An experiment where only one manipulated variable is controlled.

Conclusion

Definition: A summarization of your experiment that answers your question, and states the success of your hypothesis, all backed up by numeric data.

Pictorial Definition:



Examples:

- My hypothesis was correct, heat of makes the red liquid rise to the top of the clear container.
- My hypothesis was incorrect, Mr. Rita will punish us for standing on his porch in 100% of my trials.

Connection:

- A conclusion should directly address your hypothesis, and cite data.

Accuracy

Definition: Findings (measurements) are consistent, but not reaching the desired result due to error.

Pictorial Definition:



Examples:

- The clock on the wall can measure time accurately
- A measurement of 3.1 meters is accurate

Connection:

- A measurement can be accurate but not precise.
- A stopped clock is accurate twice a day.

Precision

Definition: Findings (measurements) are consistent, and are able to reach the desired result.

**Pictoral
Definition:**



-Examples:

- An atomic clock measures time with precision
- A measurement of 3.142593 meters is precise.

Book sentence:

- Precision is a gauge of how exact a measurement is.

Error

Definition: $\pm \frac{1}{2}$ the smallest increment of the device used to measure something.

**Pictorial
Definition:**



25 ml is the smallest
increment

Error: $\pm 12.5\text{ml}$

Examples:

- Meter stick: $\pm 0.5\text{mm}$
- Balance: $\pm 0.05\text{ g}$
- Grad. Cyl. $\pm 0.5\text{ml}$

Connection:

- Precision allows for little error

“This E-flask can have 112.5 ml or 137.5 ml.”